

damaged by washouts: very heavy rain caused flood at Yankton, carrying away railway bridges and tracks; 16th, local flood, doing considerable damage to low-buildings and railroad tracks at Toledo, O.; 19th, cloud-burst ten miles south of Yreka, Cal.; 20th, serious washouts on Union Pacific Railroad reported near North Platte; 21st, Nora Springs, Iowa, waterspout; 26th, waterspout on divide north of Colorado Springs, carried away bridges and caused serious washouts on railway: serious flood near Pittsburgh, swept away twenty-five buildings, (near Petrolia, Pa.,) several bridges and many miles of railway track; seven inches of rain reported from Irwin, Pa., estimated damage, \$300,000.

## RELATIVE HUMIDITY.

The percentages of mean Relative Humidity for the month range as follows: New England, 60 to 81; Middle Atlantic States, 60 to 80; South Atlantic States, 63 to 82; Gulf States, 57 to 79; Ohio-valley and Tennessee, 57 to 70; Lower Lakes, 64 to 70; Upper Lakes, 67 to 72; Upper Mississippi valley, 61 to 73; Lower Missouri valley, 67 to 71; Red River of the North valley, 72 to 75; Eastern Rocky Mountain Slope, 21 to 81; Rocky Mountain stations, 38 to 50; Western Plateau, 13 to 34; California, 33 to 78; Oregon, 61 to 65; Arizona, 27 to 43. *High stations* report the following averages, not corrected for altitude: Mt. Washington, 86.4; Pike's Peak, 50.7.

## WINDS.

The prevailing winds, at the Signal Corps stations, are shown by the arrows flying with the wind on chart No. II. The *maxima velocities* per hour have been given in the descriptions of movements of areas of low pressure.

*Total Movements of the Air.*—The following are the *largest* monthly movements in miles recorded at the Signal Corps stations:—Mount Washington, 20,152 miles; Cape Lookout, 13,200; Cape Hatteras, 11,129; Kittyhawk, 10,573; Dodge City, 9,725; Wood's Holl, 9,407; Pike's Peak, 9,239; Indianola, 8,949; Sandy Hook, 8,713; Smithville, 8,694; Cape May, 8,268; Breckenridge, 7,586. The *smallest* movements are:—La Mesilla, 1,593 miles; Tucson, 1,806; Nashville, 1,911; Silver City, 1,941; Florence, 2,039; Lynchburg, 2,199; Indianapolis, 2,634; Augusta, Ga., 2,755; Olympia, 2,785; Morgantown, 2,810; Cairo, 2,886.

*Local Storms*—During the month local storms have been numerous and occasionally quite severe. Those notable for *heavy rain* or *hail* will be found under the respective headings. The following is a summary of those accompanied by high or destructive winds: On the 2nd severe local storms occurred in Dakota, Minnesota, Iowa and Wisconsin, preceding low pressure area No. I, as follows: At Elkhorn, D. T., 5.30 p. m., tornado from SW. to SE. in circular course, destroying buildings, &c; the storm in Goodhue Co., Minn., Wednesday night and Thursday morning (2nd—3rd) seemed to start four miles beyond Vasa, the place of greatest destruction, and traveled toward the SW., nine persons killed and thirty injured; at Lake Emily five persons injured, considerable stock killed, granary lifted from foundation and carried 80 feet distant—storm crossed the Mississippi river at Red Wing into Pierce Co., Wis.; at Warrenton a "house was carried away, and four persons who were in it were drowned while attempting to escape, the house being flooded several feet deep;" persons were killed by lightning at Winnebago and Mountain Lake, and "every town in S. and E. part of Wisconsin suffered severely;" a "terrible" wind storm is also reported in northern part of Plymouth Co., Iowa, between 6 and 7 p. m., destroying houses and killing two men; the storm cloud was observed from Lemars, and is described as "having the appearance of an hour-glass, after which it assumed a straight column, and then seemed to break into fragments and drift away; it was in sight about half an hour. On the 6th "violent" NW. wind storm at Logansport, Ind. On the 10th and 11th severe storms accompanied low area No. III in Michigan, Ontario, Ohio, Pennsylvania, New York and Maryland as follows: 11th, Thornville, Lapeer Co., Mich., "hurricane," many buildings demolished, and in adjoining town two persons killed; at Port Huron "heaviest wind ever recorded here; numerous buildings unrooted and trees blown down, all lying from W. to E.; Sardinia, Ontario, noon, terrific storm, "apparently from across the river, in the direction of Port Huron, lasting 15 minutes, doing much damage to buildings and crops;" Sandusky, max. vel. of wind for 10 minutes, 72 miles per hour; Logan Co., Ohio, perfect hurricane in southwestern part of county, buildings damaged and stock killed, track seven miles wide and ten long, one man killed by lightning; Maumee valley, much damage to houses and trees; Eric Co., destructive storm at 3 p. m., lasting five minutes, reported to have alternately touched the ground and then to leave it for a while, general direction of storm towards the southeast, fallen trees generally lying in that direction, but some lying toward the NW.—an observer to the north of the storm states "that a funnel-shaped cloud descended to the ground, rested a moment, and then bounded off; its general appearance was a heavy bank of clouds, reaching to the surface of the ground;" in the Juniata valley, Pa., a storm doing much damage; most destructive at Mifflin, one person killed; at Lewistown buildings were blown down. On the 13th, heavy storms are reported to have visited Wrightsville and Hawkinsville, Ga., demolishing buildings, &c. On the 14th, during passage of low area No. IV at Niagara Falls, N. Y., "severe local storm, injuring buildings and trees," and at Wells' River, Vt., 5:45 p. m., "violent hail-storm and tornado" lasting fifteen minutes. On the 15th, accompanying low area No. V, severe storms in various parts of Ontario during afternoon, doing great damage to buildings and crops; Montreal, Can., night, severe thunder-storm, one person killed; Binghamton, N. Y., violent storm, one person killed, also one person killed at Skaneateles Falls by lightning. On the 16th, accompany-